

Algebra Review (hooray!):

For x:

$$\frac{ax}{by} + f = \frac{cd}{jh}$$

$$\frac{ax}{by} = \frac{cd}{jh} - f$$

$$ax = (by) \left(\frac{cd}{jh} - f \right)$$

$$x = \frac{(by) \left(\frac{cd}{jh} - f \right)}{a}$$

$$= \frac{\frac{bcdy}{jh} - bfy}{a}$$

$$= \frac{bcdy}{ajh} - \frac{bfy}{a}$$

For y :

$$\frac{ax}{by} + f = \frac{cd}{jh}$$

$$\frac{ax}{by} = \underbrace{\left(\frac{cd}{jh} - f \right)}_1$$

$$\frac{ax}{\frac{cd}{jh} - f} = by$$

$$\frac{ax}{b\left(\frac{cd}{jh} - f\right)} = y$$

For y :

$$\frac{ax}{by} + f = \frac{cd}{jh}$$

$$\left(\frac{1}{ax}\right)\left(\frac{ax}{by}\right) = \left(\frac{cd}{jh} - f\right)\left(\frac{1}{ax}\right)$$

$$\frac{1}{by} = \left(\frac{1}{ax}\right)\left(\frac{cd}{jh} - f\right)$$

$$b\left(\frac{1}{by}\right) = \left(\frac{cd}{jh} - f\right)b$$

$$\left[\frac{1}{y} = \frac{(b)\left(\frac{cd}{jh} - f\right)}{ax}\right]^{-1}$$

$$y = \frac{ax}{(b)\left(\frac{cd}{jh} - f\right)}$$

For d:

$$(jh)\left(\frac{ax}{by} + f\right) = \left(\frac{cd}{jh}\right)(jh)$$

$$\left[(jh)\left(\frac{ax}{by} + f\right) = cd\right] \frac{1}{c}$$

$$\left(\frac{jh}{c}\right)\left(\frac{ax}{by} + f\right) = d$$

$$\frac{(jh)\left(\frac{ax}{by} + f\right)}{c} = d$$

For h:

$$\left(\frac{1}{cd}\right) \left(\frac{ax}{by} + f\right) = \left(\frac{cd}{jh}\right) \frac{1}{cd}$$

$$\left[\frac{\frac{ax}{by} + f}{cd} = \frac{1}{jh} \right]^{-1}$$

$$\frac{1}{j} \left(\frac{cd}{\frac{ax}{by} + f}\right) = (jh) \left(\frac{1}{j}\right)$$

$$\frac{cd}{j\left(\frac{ax}{by} + f\right)} = h$$